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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/710,196	11/10/2000	Sukeyuki Shinotsuka	258/113	4422

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FULBRIGHT AND JAWORSKI L L P
 PATENT DOCKETING 29TH FLOOR
 865 SOUTH FIGUEROA STREET
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EXAMINER

SELBY, GEVELL V

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/710,196

Applicant(s)

SHINOTSUKA ET AL.

Examiner

Gevell Selby

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. **Claims 1-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Afghahi, US 6,046,444.**

In regard to claims 1 and 5, Afghahi, US 6,046,444, discloses a photo-sensor circuit and the method for operating the circuit comprising:

a photo-detecting element (see figure 2, element PD₂₀),

a first MOS transistor (see figure 2, element M₂₀) for charging and discharging a parasitic capacitance of the photo-detecting element (see column 3, line 65 to column 4, lines 3),

a capacitor (see figure 2, element C₂) for accumulating a terminal voltage of the photo-detecting element as a pixel signal (see column 4, lines 11-14),

a second MOS transistor (see figure 2, element M_{21}) for transferring a parasitic capacitance electric charge from the photo-detecting element to the capacitor (see column 4, lines 11-14),

a third MOS transistor (see figure 2, element M_{22}) for amplifying the terminal voltage of the capacitor (see column 4, lines 36-50), and

a fourth MOS transistor (see figure 2, element M_{23}) for selectively outputting an amplified pixel signal, characterized in that the first MOS transistor and the second MOS transistor are turned ON for a certain period of time before accumulation of a pixel signal to equalize terminal voltages of the photo-detecting element and the capacitor by charging/discharging the parasitic capacitance of the photo-detecting element and the capacitor (see column 4, lines 4-14), the second MOS transistor is turned OFF and the capacitor is open after a certain period of time of accumulation of the pixel signal and then the fourth MOS transistor is switched ON (see column 4, lines 14-21).

In regard to claims 2 and 6, Afghahi, US 6,046,444, discloses a photo-sensor circuit and method for operating the circuit comprising:

a photo-detecting element (see figure 2, element PD_{20}) for sensing a light-signal and converting said signal into an electric signal (see column 3, lines 37-41),

a first MOS transistor (see figure 2, element M_{20}) for converting a current of the photo-detecting element into a voltage having a logarithmic characteristic in a weakly inverted state (see column 3, line 65 to column 4, lines 3),

an initial setting means (RESET signal) for controlling an electric charge accumulated in a parasitic capacitance of the photo-detecting element connected to a source by setting a drain voltage of the first MOS transistor to a low voltage for a certain period of time (figure 2 and see column 3, line 65 to column 4, lines 3),

a capacitor (see figure 2, element C_2) for accumulating a terminal voltage of the photo-detecting element as a pixel signal (see column 4, lines 11-14),

a second MOS transistor (see figure 2, element M_{21}) for transferring a parasitic capacitance electric charge from the photo-detecting element to the capacitor (see column 4, lines 11-14),

a third MOS transistor (see figure 2, element M_{22}) for amplifying the terminal voltage of the capacitor (see column 4, lines 36-50), and

a fourth MOS transistor (see figure 2, element M_{23}) for selectively outputting an amplified pixel signal, characterized in that the second MOS transistor is switched ON and at the same time a voltage of the initial setting means is set to a low level to bring a parasitic capacitance of the photo-detecting element and a terminal voltage of the capacitor into a low level state before accumulation of a pixel signal, then after a certain period of time, the voltage of the initial setting means is switched to a high level state to start accumulation of a pixel signal (see column 4, lines 4-14), then after a certain period of time, the second MOS transistor is turned OFF to cause the capacitor to be open, and then the fourth MOS transistor is switched ON (see column 4, lines 14-21).

In regard to claim 3, Afghahi, US 6,046,444, discloses a photo-sensor circuit as defined in any of claims 1 and 2, characterized in that it is a single-pixel detecting component of an image sensor (see column 3, lines 37-40).

In regard to claim 4, Afghahi, US 6,046,444, discloses a photo-sensor circuit comprising:

- a photo-detecting element (see figure 2, element PD₂₀) for sensing a light-signal and converting said signal into an electric signal (see column 3, lines 37-41),

- a first MOS transistor (see figure 2, element M₂₀) connected to said photo-detecting element (see column 3, line 65 to column 4, lines 3),

- a parasitic capacitance means (see figure 2, element C_{D2}) connected to said first MOS transistor and said photo-detecting element (see column 3, line 65 to column 4, lines 3),

- a second MOS transistor (see figure 2, element M₂₁) connected to said parasitic capacitance means and said photo-detecting element (see column 4, lines 11-14),

- a third MOS transistor (see figure 2, element M₂₂),

- a capacitor (see figure 2, element C₂) connected to between said second and third MOS transistors (see column 4, lines 11-14), and

- a fourth MOS transistor (see figure 2, element M₂₃) for selectively outputting an amplified pixel signal, characterized in that an initial setting means is connected to said parasitic capacitance means through said first said first MOS

transistor for controlling an electric charge accumulated in said parasitic capacitance, said second MOS transistor is switched ON and at the same time a voltage of said initial setting means is set to a low level to bring a parasitic capacitance of the photo-detecting element and a terminal voltage of the capacitor into a low level state before accumulation of a pixel signal, then after a certain period of time, a voltage of the initial setting means is switched to a high level state to start accumulation of a pixel signal (see column 4, lines 4-14), then after a certain period of time, the second MOS transistor is turned OFF to cause the capacitor to be open and then the fourth MOS transistor is switched ON (see column 4, lines 14-21).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following the following art discloses photo-sensor circuits:

US 6,317, 154,

US 6,191,408.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gevell Selby whose telephone number is 703-305-8623. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gvs


TUAN HO
PRIMARY EXAMINER